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CLINICAL CHARACTERISTICS AND OUTCOMES OF MANAGEMENT OF CLINICALLY DIAGNOSED HYDATIDIFORM MOLE AT KNH

PRINCIPAL INVESTIGATOR:

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2019

DECLARATION

This is to certify that the work presented herein is my original work, has not been presented for a degree course in any other university and was supervised by senior members of the Department of Obstetrics and Gynecology, University of Nairobi, School of Medicine, College of Health Sciences, Kenyatta National Hospital, Nairobi, Kenya.

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DEDICATION:

This work is dedicated to Natalie, Neal and Nia.

LIST OF ABBREVIATIONS

ACOG	The American Congress of Obstetricians and Gynecologists
CBC	Complete Blood Count
CHM	Complete Hydatiform Mole
COC	Combined Oral Contraceptive
GTD	Gestational Trophoblastic Disease
hCG	Human Chorionic Gonadotropic
HM	Hydatiform Mole
KNH	Kenyatta National Hospital
LFT	Liver Function Tests
PHM	Partial Hydatiform Mole
PSTT	Placenta Site Trophoblastic Tumour
SOGC	The Society of Obstetricians and Gynecologists of Canada
TFT	Thyroid Function Tests
UEC	Urea, Electrolytes and Creatinine
UON	University of Nairobi
WHO	World Health Organization

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DEFINITION OF TERMS

Gestational Trophoblastic Diseases refers to a spectrum of interrelated but histologically distinct tumours originating from the placenta.

Hydatidiform Mole (also known as Molar pregnancy) is a form of GTD in which an abnormal pregnancy develops. It is characterised by varying degrees of trophoblastic proliferation (of cytotrophoblast and syncytiotrophoblast), with vesicular swelling of placental villi, associated with an absent or an abnormal fetus/embryo

Complete Hydatidiform Mole is the type of hydatidiform mole in which there are no fetal parts formed.

Partial Hydatidiform Moleis the type of hydatidiform mole in which a fetus forms, that may be normal or abnormal.

Ultrasonography is a modality of radiological investigations in which internal strictures are studied by measuring their reflection or transmission of high frequency or ultrasonic waves. Computer calculations of the distance to the sound reflecting or absorbing surface plus the known orientation of the sound beams give a two dimensional image.

ABSTRACT

Background: Gestational Trophoblastic Disease (GTD) refers to a spectrum of interrelated but histologically distinct tumours originating from the placenta. They include Hydatidiform Mole (partial or complete), invasive mole, Placental Site Trophoblastic tumour (PSTT) and choriocarcinoma. Hydatidiform mole (also known as Molar pregnancy) is a form of GTD in which an abnormal pregnancy develops, characterised by varying degrees of trophoblastic proliferation, with vesicular swelling of placental villi, associated with an absent or an abnormal fetus/embryo. It is considered a benign form of GTD but with malignant potential. Molar pregnancy contributes directly to maternal morbidity, as well as to morbidity due to its medical complications and Gestational Trophoblastic Neoplasia (GTN).

Objective: To determine the clinical characteristics and outcomes of management of clinically diagnosed hydatidiform mole at Kenyatta National Hospital over 5 years (2013 to 2017).

Methodology: The study adopted adescriptive retrospectivestudy design, where records for 137 patients (who were admitted between January 2013 and December 2017) with a clinical diagnosis of Hydatidiform mole were identified. Data was retrieved and analysis of how they presented and were managed was done.

Results: 42 (30%, n=137) of the patients admitted as molar pregnancy were aged between 25-29 years, 6 (4%) less then 20 years and 9 (7%) more than 40 years. The mean gestation age at presentation was 17 weeks (SD 7.4). Per vaginal bleeding was the most common symptom (105, 77%). 48 patients (52.2%) had blood group O

and 46 patients (34%) had documented histologic confirmation of molar pregnancy. None of the patients was followed up at Kenyatta National Hospital for six completed months.

Conclusion: The clinical presentation of molar pregnancy is relatively uniform in different set-ups, but the approach to definitive diagnosis of molar pregnancy at Kenyatta National Hospitaland their management and follow-up there after is suboptimal and inadequately documented hence outcome of management cannot be objectively determined.

Key words: Hydatidiform Mole, Partial Mole, Ultrasonography, Trophoblast, and Syncitiotropholast

INTRODUCTION AND LITERATURE REVIEW:

INTRODUCTION

Gestational Trophoblastic Disease (GTD) refers to a spectrum of interrelated but histologically distinct tumourswhose origin is the placenta(1–3).They include Hydatidiform Mole(partial or complete), invasive mole, Placental Site Trophoblastic tumour (PSTT) and choriocarcinoma(4,5).

Hydatidiform mole (also known as Molar pregnancy) is a form of GTD in which an abnormal pregnancy develops, characterised by varying degrees of trophoblastic proliferation (of cytotrophoblast and syncytiotrophoblast), with vesicular swelling of placental villi, associated with an absent or an abnormal fetus/embryo(2)

Hydatidiform Mole is benign but it considered to be premalignant due toits potential malignant change. Malignant disease is referred to as gestational trophoblastic neoplasia (GTN) and include the following histologic entities; Invasive mole, Choriocarcinoma, and Placental site trophoblastic tumor(6–8).

Hydatidiform Mole is made up of two distinct entities: complete hydatidiform mole and partial hydatidiform mole. These differ on the basis of chromosomal pattern, gross and microscopic histopathology, clinical presentation, and outcome.

The incidence of GTD differs widely in different regions of the world(8).The reported incidence based on hospital studies and survey in Europe and North America varies from 66- 121 per 100,000 pregnancies(9). The incidence is higher in developing countries compared to developed countries(10,11). Several studies indicate that it

ishigher in women younger than 20 years and older than 40 years of age, in nulliparous women, in patients of low economic status, and in women whose diets are deficient in protein, folic acid, and carotene(10,12).

In Italy the prevalence is 66 per 100 000 pregnancies whereas in the United States it is 122 per 100 000 pregnancies(3,13,14). In South America, 23 to 265 cases per 100 000 pregnancies(15). In the Far East, 1 in 500 (Singapore), 1 in 294 (Japan), and 1 in 314 (Iran) have been reported.

Data from Africa is scarce, two studies from Nigeria report a prevalence ranging from 99 to 335 cases per 100 000 pregnancies (11). A 10-year retrospective study of patients with molar pregnancy managed at a tertiary hospital in South East Nigeria from 2001 to 2010 reported 34 cases of molar pregnancy, out of a total delivery of 7,579, giving an incidence of 0.4% or 1 in 223 deliveries. The mean age of the patients was 31.3 years, and 29.0% of the patients were nulliparous. The mean gestational age of the patients at presentation was 14.7 weeks (16).

One South African study estimates the incidence of molar pregnancy at 1.2 per 1 000 deliveries(11)and a cross-sectional study in two referral hospitals in Mwanza, Northwest Tanzania, indicated that the prevalence of molar pregnancy among patients on treatment for incomplete abortion was 12.8%(23/180). It was higher among patients who were below 20 years, among primiparous, and among those with history of previous abortion and previous molar pregnancy(17)

BACKGROUND INFORMATION:

GTDs arise from embryonic trophoblastic tissues, which are specialized cells that originate from early embryonic differentiation of outermost blastocyst layer. The trophoblasts are classified into three distinct classes based on morphology, immunohistochemical characteristics and functions; cytotrophoblasts, syncytiotrophoblasts and intermediate trophoblasts. The intermediate trophoblasts invade the decidua, the myometrium, and spiral arteries during the second wave of trophoblastic proliferation and establish the foetal-maternal circulation. The trophoblasts covering the chorionic villi differentiate into multinucleated syncytiotrophoblasts with no proliferative potential.

HydatidiformMole is characterised by a trophoblastic proliferation and vacuolar (hydropic) swelling of chorionic villi. Complete Hydatidiform Moleis featured by hyperplasia of all three trophoblastic cell linages on the chorionic villi, most of which is diploid with 46XX karyotype with paternal chromosomes. It arises from monospermic fertilisation of anuclear ovum by a haploid (23X) sperm followed by duplication of the genome.

A minority of complete hydatidiform mole (4-15%) may arise from dispermic fertilization of anuclear ovum and thus may have 46XX or 46XY karyotype. However, the mitochondrial DNA in both cases remain maternal. In rare cases, complete hydatidiform mole may arise as diploid biparental due to autosomal recessive mutation of *NLRP7* and *KHDC3L* genes, which presents as familial recurrent Hydatidiform mole (FRHM). Patients with FRHM can only achieve normal pregnancy through ovum donation (7). Partial Hydatidiform moles are inherently triploid as they

arise from dispermic fertilization of a normal haploid ovum. The resultant biparental zygote has 69XXY, 69XXX or more rarely 69XYY chromosomal configuration(18).

LITERATURE REVIEW

Patients With hydatidiform moleusually present with signs and symptoms consistent with an incomplete or missed abortion, including vaginal bleeding and absence of fetal heart tones. In a retrospective study (1994-2013) at a Brazilian trophoblastic disease center, investigators evaluated the clinical presentations and incidence of post molar gestational trophoblastic neoplasia (GTN) among 355 women with complete mole (n =186) or partial mole (n = 169), with the following findings: vaginal bleeding, biochemical hyperthyroidism, anemia, uterine size larger than dates, and hyperemesis occurred lesser among women with partial mole;Pre-evacuation serum hCG levels was lower in women with partial mole; Median gestational age at evacuation was 9 weeks for omplete hydatidiform mole and 12 weeks for partial hydatidiform mole; and the risk of development of GTN, 17.7% among women with complete hydatidiform mole and 4.1% among patients with partial hydatidiform mole. Uterine enlargement and preeclampsia is reported in only 5% of patients with partial hydatidiform mole (19), theca lutein cysts, hyperemesis, and hyperthyroidism are extremely rare.

Bleeding is the most common classic symptom of a complete molar pregnancy. Molar tissue separates from the decidua, causing bleeding. The typical appearance of the vaginal bleeding is described as a "prune juice", secondary to the accumulated blood products in the uterine cavity and resultant oxidation and liquefaction of that blood. The uterus may become distended by large amounts of blood, and dark fluid may leak into the vagina.Some patients also experience passage of vaginal tissue

described as grape-like clusters or vesicles.There is a decrease in the classical presentation of molar pregnancy as earlier diagnosis continues to become more feasible with ultrasonography(20–22).

A study by Irene Githinji, Radiology department, UON, April – December 2013, assessing sonographic findings in patients with first trimester bleeding found a prevalence of 3.8% for GTD, 5.9% anembryonic pregnancies and 7.6% embryonic demise among 237 patients with first trimester bleeding(23)

Patients may also present with hyperemesis due to extremely high levels of human chorionic gonadotropin (hCG) and due to an additional hyperthyroid state(24). Hyperemesis occurs in up to 4% of patients diagnosed at 5-9 weeks of gestation, and at a higher proportion when the diagnosis is made after 10 weeks' gestation(25).Hyperthyroidism may occur due to stimulation of the thyroid gland by the high levels of circulating hCG or by thyrotropin a thyroid stimulating substance produced by the trophoblasts(26) (Clinicalhyperthyroidism has been reported in 3.7% of women with a hydatidiform mole diagnosed after the 10th week of gestation.

Theca Lutein Cysts and accompanying ovarian enlargement may occur. These are reported in 11% of cases diagnosed at longer than10-weeks' gestational age(27). These are ovarian cysts greater than 6 cm in diameter. They develop in response to high levels of beta-hCG and are usually identified by ultrasonography. The cysts spontaneously regress after the mole is evacuated, but it may take up to 12 weeks for complete regression(19,22).

The management of molar pregnancy entails appropriate diagnosis, investigations and treatment.Ultrasonography is considered to be the modality of choice for evaluating normal and abnormal first trimester pregnancy.It is the first line imaging investigation for diagnosis of a clinically suspected hydatidiform mole(22,28,29). A study assessing sensitivity and positive predictive value of ultrasound in diagnosis of molar pregnancy, found an overall sensitivity of 44% and a positive predictive value of 48% (21), concluding that one in two women with abnormal scan will have disease confirmed by histology, and that ultrasonography is more reliable for complete than for partial hydatidiform mole (21).

A study at the Charing Cross Hospital, London, found an overall of 44% ultrasound detection rate of hydatidiform mole, 79% for complete hydatidiform mole and 29% for partial hydatidiform mole. In the study, it was found that the sensitivity, specificity, positive predictive value and negative predictive value for routine pre-evacuation ultrasound examination for detection of hydatidiform mole of any type were 44%, 74%, 88% and 23%, respectively(30).

Availability of ultrasound makes it often possible for the characteristic appearance of vesicular molar pattern of complete hydatidiform mole to be identified in the first trimester before vaginal spotting or passage of macroscopic vesicles. Ultrasound features include: an enlarged uterus, intrauterine mass with cystic spaces without any associated fetal parts (snow storm/bunch of grapes appearance), bilateral thecal cysts, high velocity with low impendence flow on color doppler (21,22,30,31).

MRI would demonstrate an intrauterine heterogeneous mass with cystic spaces, fetal parts notably absent. Bilateral theca lutein cysts may also be demonstrated. MRI studies can be used to rule out extension of molar tissue outside the uterus.The diagnosis of PHM is more complex and less likely although ultrasound may demonstrate focal cystic spaces in the placenta and an increase in the transverse diameter of the gestational sac(12,19). A fetus may be seen in advancing age. Some described features include: enlarged placenta, relative to the size of uterine cavity, cystic spaces within the placenta (molar placenta), a well-formed fetus but with growth restriction, fetal demise, or hydropic degeneration of fetal parts.

Laboratory Investigations donein aid of diagnosis and treatment of molar pregnancy are an important part of management. hCG surveillance plays an important role in the clinical management of women with GTD. An abnormally elevated hCG level for gestation age should raise suspicion and warrant histological assessment following an evacuation.

All patients treated for molar pregnancy should be monitored using serum hCG values after evacuation to evaluate for remission or post molar GTN. Many guidelines recommend follow up by a BhCG monitoring protocol. ACOG recommends weekly hCG levels until non-detectable for 3 weeks, then monthly for 6 months. If undetectable for six months, the patient may resume trying to conceive, if she wishes(1).

The Clinical Protocols and Treatment Guidelines of Rwanda recommends: BhCG every 48 hours for the 1st week, then weekly till Normal values attained for three readings, then every 6 months. Immediate initiation of contraception also

recommended, and review of patient if any vaginal bleeding occurs, and Anti-D administration if Rhesus Negative.

The other laboratory investigations that are useful in the evaluation and management of hydatidiform mole include: Thyroid function tests, Liver function tests, Coagulation assay, Blood grouping and cross matching and a complete blood count.

Thyroid Function assay is done to rule out hyperthyroidism that is knownto be a likely complication of molar pregnancy, whereas Liver function assessment is necessary especially in a patient who presents with pre-eclampsia, alongside a complete blood count to rule out HELLP syndrome. Because of a likely consumption of coagulation factors and a resultant coagulopathy, a coagulation screen is necessary pre-molar evacuation(4).

Tissue histology is the mainstay for definitive diagnosis of Molar pregnancy.A retrospective series by N.J. Sebire et al (2001)(12) of 155 cases with a reviewed histological diagnosis of complete or partial HM had the following findings: In 131 (67%) of the patients,ultrasound diagnosis was that of a missed miscarriage/anembryonic pregnancy with no documented suspicion of molar pregnancy, referral being on the basis of histological examination of products of conception. In 63 of them, ultrasound examination suggested molar pregnancy; in 53 (84%) of these, the diagnosis of molar pregnancy was correct. Overall, 37 of 64 (58%) with complete moles had ultrasound evidence of molar pregnancy compared to 16 of 91 (17%) with partial moles. Of 155 histologically confirmed complete or

partial hydatidiform moles, only 53 (34%) of them were suspected as molar pregnanciesby a pre-evacuation ultrasound(12,30).

Regardless of the uterine size, suction curettage is the preferred method of evacuation, preferably done under ultrasound guidance(9). Oxytocic drugs and prostaglandin analogues are used after evacuation if significant haemorrhage occurs. Sharp curettage is discouraged until 2 weeks later, as it poses a risk to dissemination of tissues, leading to metastasis. This too is the fear with use of oxytocics and medical evacuation(32).

The 2013 Kenya National guidelines for cancer management recommend the following for treatment of Molar pregnancy (33):Suction curettage as the standard treatment, sharp curettage two weeks later for histopathological diagnosis, Combined Oral contraceptive pill for at least one year after treatment, hysterectomy, as an alternative in special cases, and Anti-D administration after uterine evacuation for Rhesus Negative patients.

Comparatively, the Clinical Protocols and Treatment Guidelines of Rwanda,2012,recommend the following:Aspiration under ultrasound guidance, Oxytocin administration after aspiration, Histology of products of conception and Post-molar surveillance: hCG monitoring and contraception Prophylactic chemotherapy may be considered in patients who may be lost to follow up.

The SOGC clinical practice guidelines for management of GTD recommends(6); suction curettage as the preferred method of evacuation of molar pregnancy, Post-

operative surveillance with hCG and contraception (preferably COC) until hCG levels have been normal for 6 months following evacuation.

As many as 20% of patients with complete hydatidiform mole and 5% with partial hydatidiform mole may have residual disease, therefore close follow up and monitoring is mandatory after suction curettage(34). The residual disease is referred to as persistent gestational trophoblastic disease. This entity can manifest as locally invasive or metastatic lesions.(35,36).

JUSTIFICATION

Hydatidiform mole contributes to the burden of maternal morbidity and mortality. Its disease burden is contributed to by its associated medical complications, which include: Hyperemesis gravidarum and it's related complications, pre-eclampsia, hyperthyroidism, Anaemia and need for blood transfusion. Other complications of molar pregnancy including persistent GTD, progress to GTN, effect on reproduction by postponement of conception, and the need for several scheduled out-patient follow up visits, also impact on the health of the affected patients and contribute to the disease burden(5,8,13).

A case recordis reported at KNH of molar pregnancy, its presentation, management and management outcomes(37), but a study analysing patient characteristics, presentation, management and management outcomes over a duration of time has not been conducted.

A study by Irene Githinji, Radiology department, UON, April to December 2013, assessing sonographic findings in patients with first trimester bleeding found a prevalence of 3.8% for GTD, 5.9% anembryonic pregnancies and 7.6% embryonic

demise among 237 patients with first trimester bleeding(23). All these (41/273) could contribute to the prevalence of hydatidiform mole if they were to be followed by histology studies after evacuation.

The ministry of Health, through the national guidelines for cancer management, August 2013, developed guidelines for management and follow-up of patients with GTD, describing part of expected clinical presentation. The guidelines take note of the fact that molar pregnancy is the most common risk factor for GTN(33). It is not clear whether these guidelines are adhered to in the management and follow up of patients at KNH.

This study, therefore, aims to determine the patient characteristics, clinical presentation, management, and management outcomes and follow up practices of hydatidiform mole at KNH.

CONCEPTUAL FRAMEWORK:

Patients with molar pregnancy usually present with varying symptoms and signs, including bleeding following a period of amenorrhea, passing of vesicles and symptoms of medical complications (e.g. hyperemesis, hypertension and hyperthyroidism). Work-ups to strengthen the clinical diagnosis include hCG levels and ultrasonography. Suction evacuation should be done and specimen taken for histopathological diagnosis. Patients should be followed up by a recommended guideline with subsequent hCG levels monitored.

The conceptual framework (figure 1) illustrates the approach to clinical diagnosis of molar pregnancy (symptoms, signs, laboratory and radiological investigations), management, subsequent follow-up and possible outcomes of molar pregnancy.

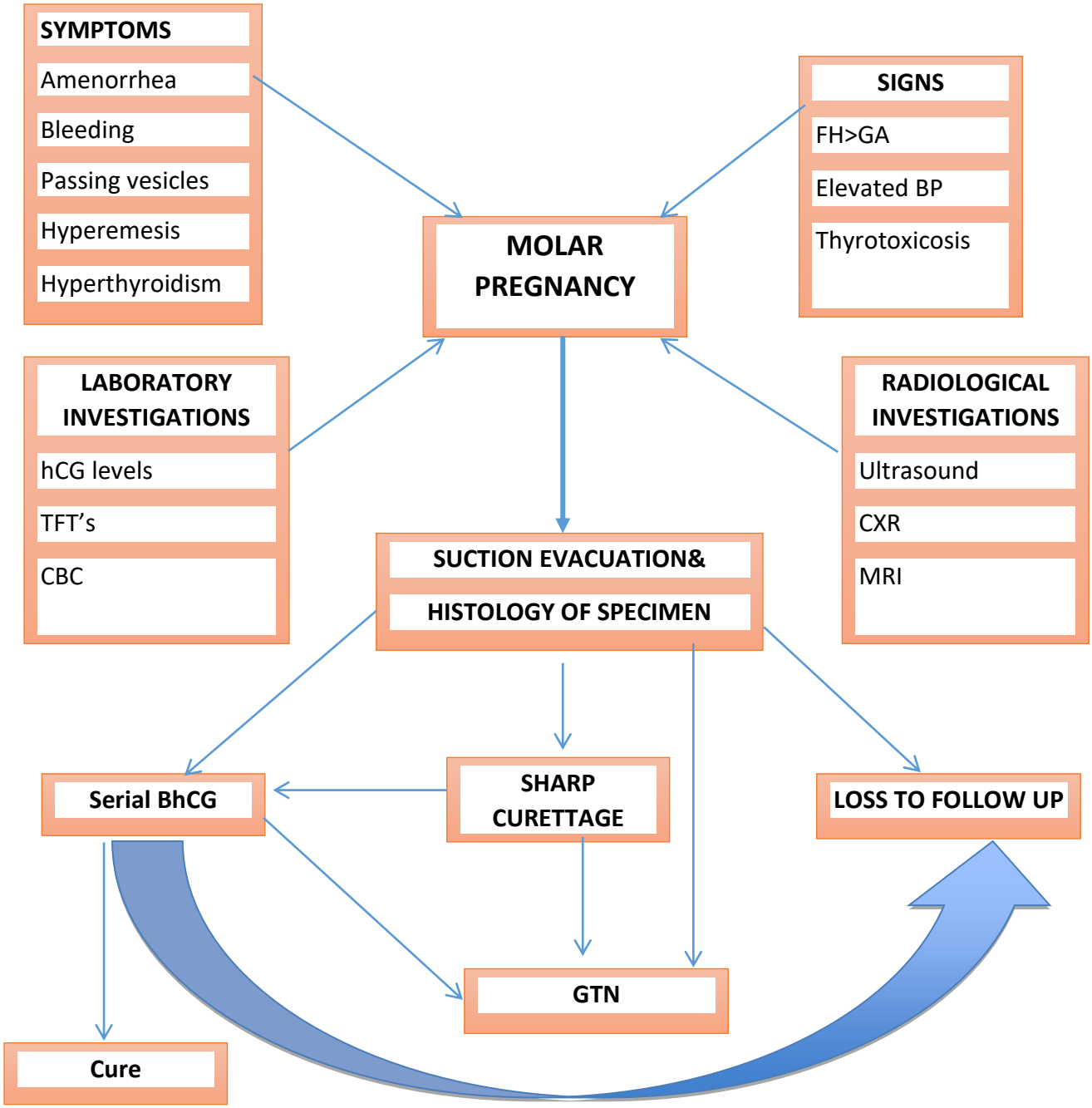

Figure 1: Conceptual framework indicating approach to clinical diagnosis , management and outcomes of hydatidiform mole.

RESEARCH QUESTION

What are the clinical characteristicsand outcome of management of clinically diagnosedHydatidiform Mole atKenyatta National Hospitalfor the period 2013-2017?

OBJECTIVES

***Broad Objective*:** To determine the clinical characteristics and outcomes of management of clinically diagnosed Hydatidiform Mole at Kenyatta National Hospital during the period 2013 to 2017.

Specific Objectives

Among patients managed for clinically diagnosed Hydatidiform Mole in KNH between 2013 and 2017,

1. To determine their demographic and clinical characteristics.
2. To determine their mode of treatment.
3. To determine their treatment outcomes.
4. To determine their management after evacuation and discharge.

METHODOLOGY

Study Design

The study adopted a descriptive retrospective study design, where records of patients admitted with a clinical diagnosis of Hydatidiform Mole between 1st January 2013 and 31st December 2017were identified, data obtained and an analysis of how they presented and were managed was done.

Study setting

The study was conducted at Kenyatta National Hospital, a national teaching and referral hospital located in the capital city of Nairobi, largely serving middle and lower income populations. KNH admits an average of one to four patients each month to ward 1D for management of hydatidiform mole. Their diagnosis mostly based on radiologic findings. Patientshave other work-ups includinghCG levels done before suction curettage, and subsequent hCG levels to monitor treatment outcome.

Histology specimens are processed and reported at the KNH and UON pathology laboratories, and the results filed in patients files.

Study population

The study population were patients admitted with a clinical diagnosis of molar pregnancy and managed between 1st January 2013 and 31st December 2017. They provided an open retrospective cohort for this study, their information being in their medical records. The patients were drawn from the KNH catchment population and referrals from peripheral health facilities countrywide.

Inclusion criteria

Records of patients who were admitted at KNH with a clinical diagnosis of hydatidiform mole betweenJanuary 2013and December 2017

Exclusion criteria

Records of patients who referred to KNH after suction evacuation, for further management e.g. Blood transfusion were excluded from the study.

Sample size calculation

Sample size was calculated using the Fisher's formula;

$$n = \frac{Z^2 x\ P(1-P)}{d^2}$$

Where,

n = Desired sample size

Z = Value from standard normal distribution corresponding to desired confidence level (Z=1.96 for 95% CI)

P = expected true proportion (estimated at 72.9%, from a prospective study conducted by MahrukhF. et al (2011) at a tertiary referral centre in Pakistan; looking at incidence, management and outcome of molar pregnancies, found 72.9% of them were managed by suction evacuation and curattage.)

d = desired precision (0.05)

$$n_0 = \frac{1.96^2 x\ 0.729(1-0.729)}{0.05^2} = 305$$

Approximately 1-4 patients are managed for clinically diagnosed molar pregnancy at the Kenyatta National Hospital each month,therefore within the study period of 60 months, it is estimated that there will be up to approximately 240 cases. Adjusting the sample size for finite populations less than 10,000, therefore

$$nf = \frac{n_0}{1 + \frac{n_0 - 1}{N}} = \frac{305}{1 + \frac{305-1}{240}} = 134$$

A calculated Sample size of 134 patients was required for the study. 137 were taken up for the study.

Sampling procedure

Consecutive sampling method was used where all the recordsof patients who were admitted with a clinical diagnosis of molar pregnancy and were managed at the KNH between 1st January 2013 and 31st December 2017 were taken. Data was extracted from the records using a data abstraction tool (attached in annex 2). This was then taken for analysis.

Data Variables

Outcome and exposure variables and the sources of data according to each objective as shown in table1 below:

Table 1: Outcome and exposure variables and the sources of data according to each objective

Objective	Outcome variable	Exposure variable	Sources of data
Patient Characteristics	Socio-demographic and reproductive characteristics	• Age • Parity	Case files Registers
The clinical presentation of H mole	Clinical presentation	• Total number with HM • Number with per vaginal bleeding • Number with excessive uterine distension • Number with medical complications (hyperemesis, hyperthyroidism, hypertension) • Number with theca lutein cyst • Gestation age at time of presentation • Number with missed abortion • Number with anembryonic pregnancy	Register Case file
Diagnostic criteria used for H mole	Diagnostic	• Clinical • Ultrasound • BhCG • Histology	Case file
The treatment, follow up and outcomes for H mole	Treatment offered	• Suction Evacuation • Post evacuation uterotonics • Post evacuation sharp curettage • Chemotherapy	Case file
Follow up	• Follow up	• Number of clinic visits • BhCG follow up • Contraceptive use	Case file
Outcomes	• Outcomes	• Treatment success • GTN	Case file

Data collection and analysis

Patients' files were traced from records office and handled with absolute confidentiality. Data was extracted from patient' medical records, histopathological reports and outpatient clinic follow up records/notes. Quantitative data from abstraction forms was checked for completeness and coded for appropriate computer entry. Data was entered into Statistical Package Social Sciences (SPSS) version 22 for data cleaning and analysis

Categorical data in all the objectives of the study was summarised and presented as frequencies and proportions, while continuous data was summarised and presented as means and standard deviations, and where applicable medians and interquartile ranges.

Dealing with missing data

Data missing in each of the variables under consideration in this study was assumed to occur through the missing completely at random (MCAR) mechanism and hence complete-case analysis was applicable.

Ethical considerations

Permission was sought from the KNH administration and theKNH and UON Ethics Research Committee to carry out this study as part of the thesis dissertation. Copies of this protocol were presented to this committee for written approval prior to commencing the study.

All information was handled with uttermost confidentiality throughout the tenure of the study, held in trust by the investigator, research assistants and the study

institution. Identifiers were not collected. A password-protected computer with access only to the primary investigator and research assistant was used. The research assistant was trained on ethical research conduct and data confidentiality before the research was conducted. Fileswere given study identification numbers and no information concerning the study subjects was released to an unauthorized third party.

Study limitations

This study employed a retrospective approach with secondary data, which is prone to missing data problem. As highlighted above majority of the missing data were treated as to have occurred through the ignorable (MCAR) mechanism and complete-case analysis (analyses of cases with available data for each variable) was utilized. It is strengthened by the fact that it is the index descriptive study on molar pregnancy in the country.

CHAPTER 3:

RESULTS:

Files of patients managedafter being clinically diagnosed with Molar Pregnancy throughout the study period were searched through KNH electronic medical records. The electronic data search yielded a total of 254 files. An additional yield of 31 files was obtained from ward 1D admissions and discharge register by a manual search. All the identified files were retrieved and filtered for correctness of coding for a clinical diagnosis of Molar pregnancy. 148 files were found to be incorrectly coded and were returned for proper coding. 137 files, which were correctly coded as molar pregnancy, were then taken up for data collection and analysis. There were no files that fit the exclusion criteria.

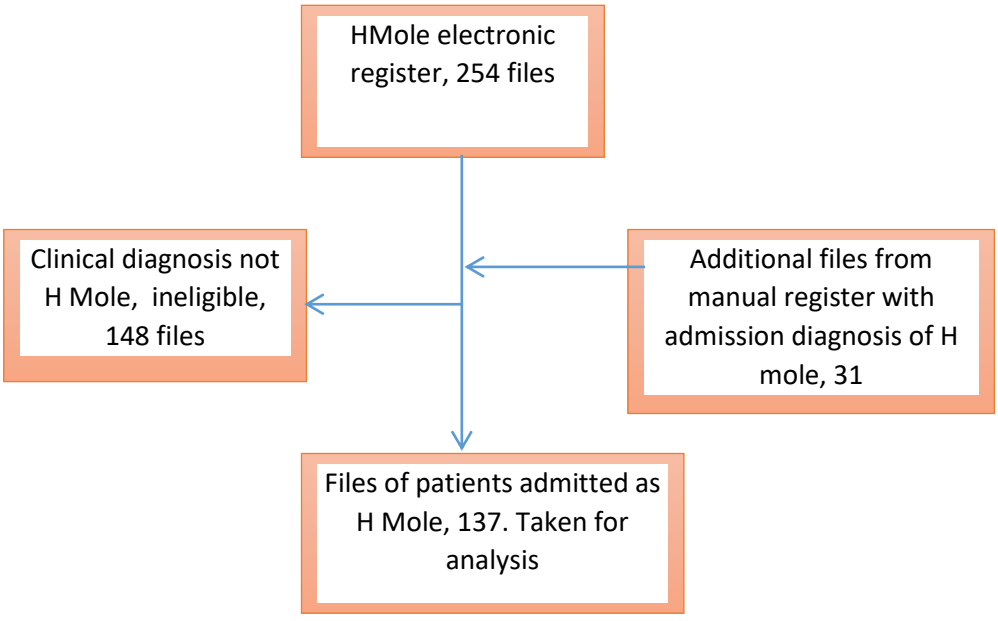

Figure 2: Study flow diagram of patients admitted and managed for clinically diagnosed hydatidiform mole between January 2013 and December 2017.

Demographic and clinical characteristics:

Records of 137 patients who were admitted between 1st January 2013 and 31st December 2017 with a clinical diagnosis of molar pregnancy were analysed. Their general characteristics are summarized in table 2 below. Majority of the patients presented to the tertiary referral hospital without having been referred from other facilities. Most patients were aged between 20 and 34 years, 6(4%) were aged below 20 years and 9(7%) were aged above 40 years. 40 (29%) of the patients were nulliparous and the remaining 97(71%) being Para 1 and above. 3 out of the cumulative previous pregnancies were molar pregnancies, representing 1.5% of cumulative previous pregnancies (262), 189 (72%) were term pregnancies and 58(20%) were abortions whereas previous pregnancy outcomes for 12(4.5%) were not indicated in the available medical records. The mean and median gestation age at presentation was 17 weeks (SD 7.4, IQR 7). The most common symptom was per vaginal bleeding which occurred in 105(77%) of the patients. The frequency of the other symptoms documented were as follows; 14(10%) were asymptomatic, 6(4%) had passage of vesicles and 16(11.7%) had excessive vomiting, 3(2.2%) had theca lutein cysts on pelvic ultrasonography, 8(6%) presented with anemia, and only 1(0.7%) presented with hypertensive disease in pregnancy. The mean duration of per vaginal bleeding was 14.8(SD 22.8) days and excessive vomiting 13.9(SD 13.1) days.

Table 2: Demographic and clinical characteristics of patients managed at Kenyatta National Hospital between 1st January 2013 and 31st December 2017 with a clinical diagnosis of Hydatidiform mole:

	Characteristic	**n(%)**
Patient source	Referral	58 (42)
	KNH	79 (58)
Age (years)	<20 years	6 (4)
	20-24	35 (26)
	25-29	42 (30)
	30-34	33 (24)
	35-39	12 (9)
	>=40	9 (7)
Parity	Nulliparous (Para 0)	40 (29)
	Para 1	42 (31)
	Para 2-5	52 (38)
	Para >5	3 (2)
Gestation age at presentation (weeks)	Median (IQR)	17 (7)
	Mean (SD)	17.3 (7.4)
Previous pregnancies outcomes	Term	189/262
	H mole	3/262
	Miscarriage/abortion	58/262
Symptoms and signs	Asymptomatic	14 (10)
	Amenorrhea	13 (10)
	Per vaginal bleeding	105 (77)
	Passing of vesicles	6 (4)
	Excessive vomiting	16 (12)
	Uterine snowstorm appearance	2 (2)
	Theca lutein cysts	3 (2)
	Anemia	8 (6)
	Hypertension in pregnancy	1 (1)
Mean duration of symptoms (days)	Vaginal bleeding – Mean (SD)	14.8 (22.8)
	Excessive vomiting Mean (SD)	13.9 (13.1)

Out of the patients who had blood group results documented, illustrated in figure 3 (n=92), 48(52%) of them had blood group O, 23(25%) of them blood group B, 16(17%) blood group A, and 5(6%) blood group AB.

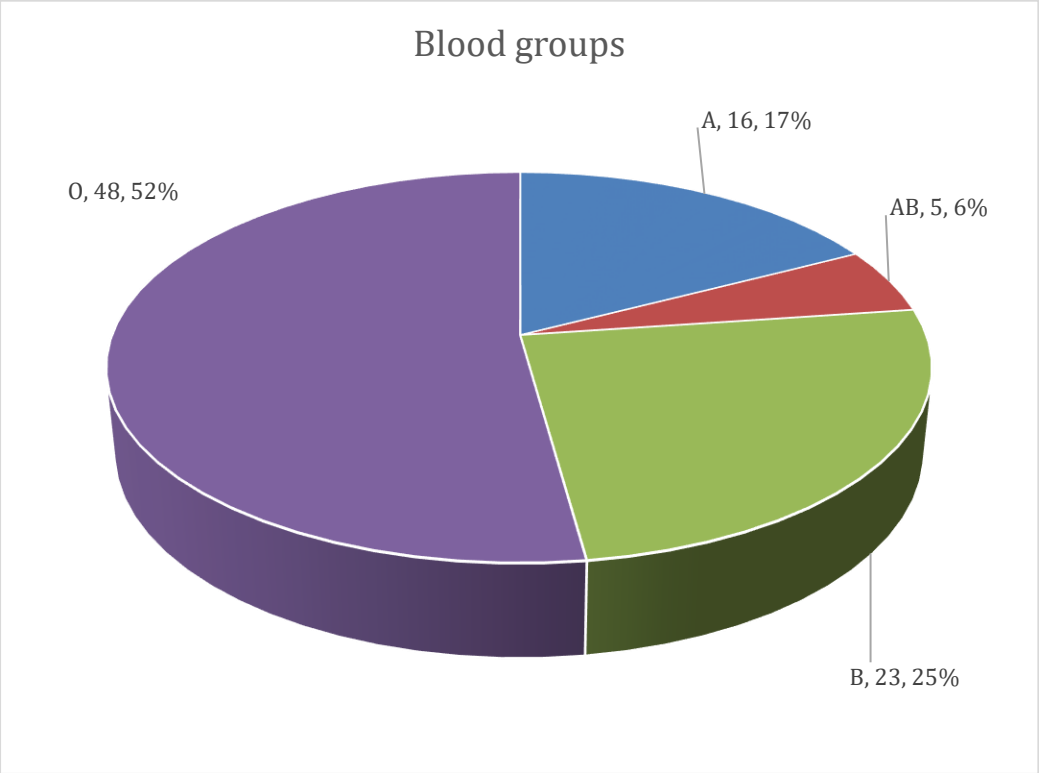

Figure 3: Blood groups distribution among patients managed for clinically diagnosed molar pregnancy at Kenyatta National Hospital, 2013-2017

Management:

All patients who presented to Kenyatta National Hospital with a clinical diagnosis of hydatidiform mole were admitted to ward 1D. The mean duration of admission was 5.8 (SD 3.9) with a median of 4(IQR 3) days. The waiting time from admission to definitive management was a mean duration of 3.1(SD2.3) days and a median of 3(IQR 3) days.

115(84%) of the patients had pre-evacuation hCG levels assessed and recorded whereas in 22(16%) of them, there were no available records of pre-evacuation hCG levels. A pelvic ultrasound was done in 131(96%) of them. Other workups done included a complete blood count (117, 85%), Thyroid function tests (4, 3%), abdominal ultrasonography (4, 3%) and plain chest radiography (3, 2%).

For patients who had pre-evacuation hCG levels done, the lower recorded hCG value was 15.51mIU/ml and the upper value 333561.0mIU/ml. The median hCG levels were 10,000.0mIU/ml (IQR7755).

125(93.3%) of the patients were managed by suction evacuation, 8(6%) and 1(1%) were managed by manual vacuum aspiration (MVA) and medical evacuation respectively. Additional management utilized was; oxytocin administration in 92(67%), prostaglandin or prostaglandin analog administration in 28(20%) and 24(18%) required blood transfusion. None of the patients who were managed by evacuation were given uterotonics prior to the uterine evacuation.

Table 3: Management of patients admitted at Kenyatta National Hospital with a clinical diagnosis of hydatidiform mole between 1st January 2013 and 31st December 2017.

	Characteristic	**n(%)**
Admission	Yes	137(100)
Duration of admission (days)	Mean (SD)	5.8 (3.9)
	Median (IQR)	4 (3)
Duration from admission to evacuation (days)	Mean (SD)	3.1 (2.3)
	Median (IQR)	3 (3)
Pre-evacuation hCG levels	Done	115 (84)
Pelvic ultrasound	Done	131 (96)
Other workups done	Complete blood count	117 (85)
	Thyroid function tests	4 (3)
	Abdominal ultrasonography	4 (3)
	Chest plain radiography	3 (2)
Results of Pre evacuation hCG levels	Mean (SD)	18722.8 (45648)
	Median (IQR)	10000.0 (7755)
	Lower value	15.51
	Upper value	333561.0
Uterine evacuation	Suction curettage	125 (93)
	MVA	8 (6)
	Medical evacuation	1 (1)
Supportive management	Blood transfusion	24 (18)
Oxytocin for supportive/additional management	Oxytocin administered	92 (67)
	Only During evacuation	54 (59)
	During and after evacuation	2 (2)
	Only after evacuation	36 (39)
Prostaglandin/prostaglandin analog for supportive/additional management	Prostaglandin or analog used	28 (20)
	Only during evacuation	1 (4)
	During and after evacuation	7 (25)
	After evacuation	20 (71)

Management after evacuation and discharge:

Following admission of patients for management of clinically diagnosed molar pregnancy, post molar-evacuation workups done included histology of products evacuated, hCG levels, complete blood count, plain chest radiography and Pelvic ultrasound; these were done in 90(66%), 80(58%), 9(7%), 2(2%) and 4(3%) of the patients respectively. 46(34%) of the samples processed for histologicaldiagnoses confirmed diagnosis of hydatidiform mole, 43 of them (32%) had complete hydatidiform mole and 3(2%) had partial hydatidiform mole. 40(29%) had negative reports for GTD and 51(37%) had no documented histology reports.

All patients were discharged via Gynaecological Out patient Clinic (GOPC) with a mean of 13.7(SD 4.8) days follow up from the date of evacuation. Post molar evacuation sharp curettage was done for 4(3%) patients only.

85(62%) of patients had subsequent hCG levels done.

59(43%) of the patients were started on Combined oral contraceptives pills during the follow-up period.

Table 4: Management following evacuation and discharge of patients managed at Kenyatta National Hospital with a clinical diagnosis of hydatidifom mole between 1st January 2013 and 31st December 2017

	Characteristic	**n(%)**
Investigations post molar evacuation	Histology	90 (66)
	hCG levels	80 (58)
	Complete blood count	9 (7)
	Chest plain radiography	2 (2)
	Pelvic ultrasound	4 (3)
Summary of Histology report	Complete H Mole	43 (32)
	Negative for GTD	40 (29)
	Partial H Mole	3 (2)
	No histology report	51 (37)
GOPC follow-up	KNH	137 (100.0)
Duration (days) to GOPC booking after evacuation	Mean (SD)	13.7 (4.8)
	Median (IQR)	14 (6)
Sharp curettage post molar evacuation	Done	4 (3)
	Not done	133 (97)
hCG for monitoring of recovery	Done	85 (62)
	Not done	52 (38)
	Recorded plateau or rise in hCG levels	6(4.4)
Subsequent hCG for patients with histology confirming H mole (N=46)	Median number of times hCG was done (IQR)	1(3)
	Mean number of times hCG was done (SD)	1.8(2.49)
	Minimum recorded number of hCG	0
	Maximum number of recorded hCG	11
	Patients monitored up to 6 months post molar evacuation	0
Contraceptives	COC	59 (43)
	Natural methods	1 (1)
	Progestin based	1 (1)
	None	58 (42)
	Not specified	18 (13)

Upon sub analysis of the 46 patients who had histological confirmation of molar pregnancy; their mean age was 28 years (SD 6.6), distribution illustrated in figure 4 below. The mean of the number of times hCG levels ware done was 1.8 (SD 2.49), the median being 1 (IQR 3), ranging between 0-11 times. The hCG regression logs illustratedin figure 5 below indicate that none of the patients had subsequent hCG levels monitored at the Kenyatta National Hospital for a complete 6 months period, hence success of treatment cannot be ascertained by the available records.

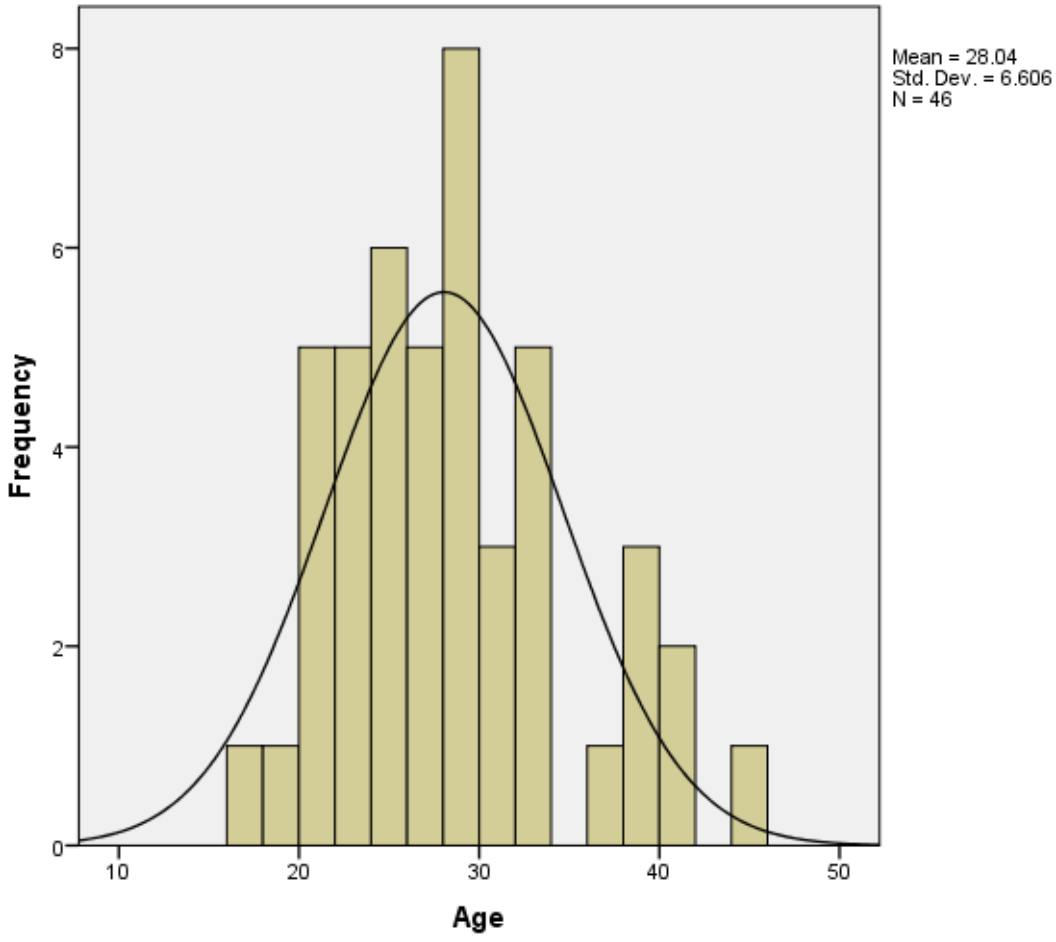

Figure 4: Showing age distribution among patients managed at Kenyatta National Hospital with a histological confirmation of Molar pregnancy 2013-2017

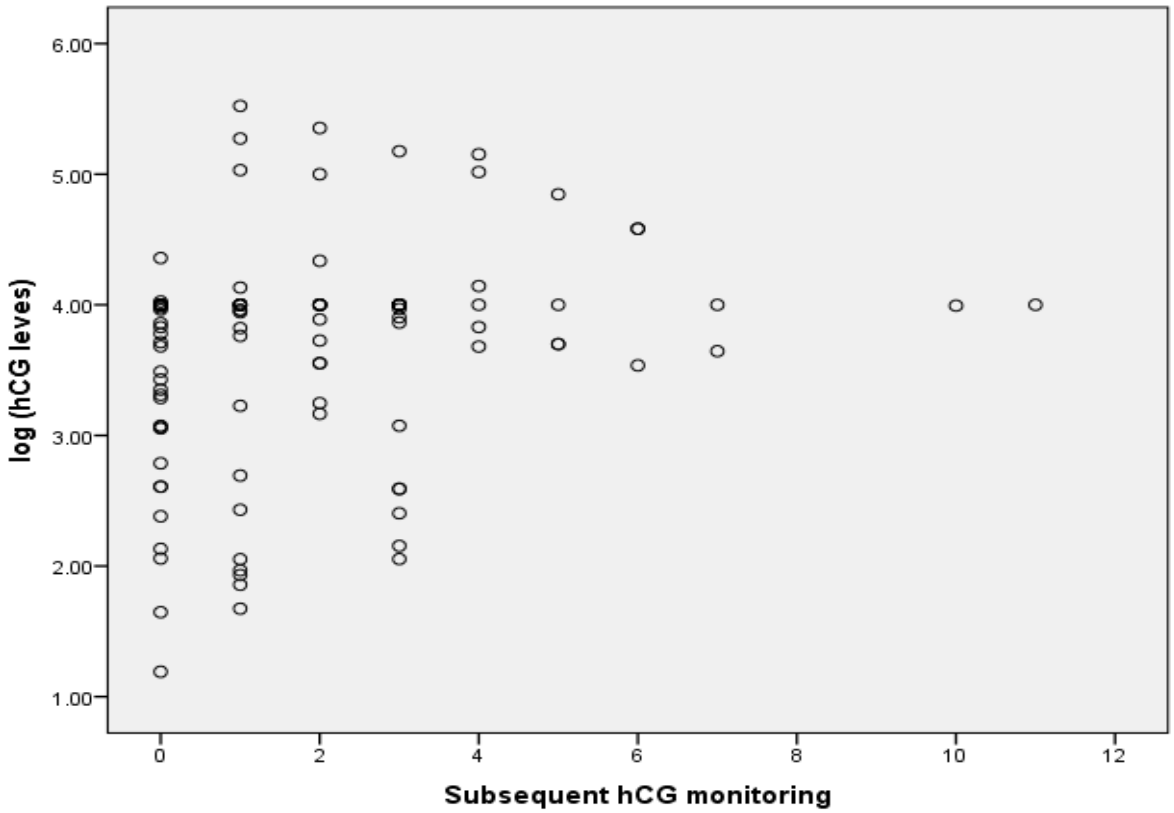

Figure 5: Showing logs of hCG regression for subsequent follow-up visits for patients with histological confirmation of Molar pregnancy at Kenyatta National Hospital, 2013-2017.

DISCUSSION:

This study sort to determine the clinical characteristics and outcomes of management of clinically diagnosed Hydatidiform Mole at Kenyatta National Hospital during the period 2013 to 2017. The main findings of the study were that majority of the patients presented with per vaginal bleeding at about 17 weeks of gestation, majority were managed by suction evacuation of whomabout one third of the patients had histological confirmation of hydatidiform mole, outcome of management was indeterminate for majority of the patients, and that subsequent hCG evaluation for those who had confirmed hydatidiform mole was not adequate.

About one third of the patients in this study were nulliparous, and presented at about 17 weeks gestation. This is comparable to the study by Igwegbe A and Eleje G in South East Nigeria which also had about one third of the patients being nulliparous with a mean gestation age at presentation of 14.7 weeks(16). In the Brazillian Trophoblastic disease centre retrospective study (1994-2013)., the median gestation age at evacuation was 9 weeks(19), the early diagnosis and intervention being attributed to early pelvic ultrasound. Bleeding has been demonstrated to be the most common symptom in most studies including the Brazillian study and in this study. Kirk E et al demonstrated that one in two women with an abnormal scan would have disease confirmed by histology(21). In this study, only about one third of patients with radiological diagnosis had available records confirming histological diagnosis of hydatidiform mole.

This study found that majority of the patients were managed by suction evacuation as is recommended by the 2013 Kenya National guidelines for cancer management (33), ACOG, FIGO, SOGC and EOTTD. This study also found that about one third of the patients had hydatidiform mole confirmed histologically. Another one third of the

patients' files did not have recordsindicative of a histological diagnosis. The scope of this study could not determine why there was no record of the histological diagnosis.

To monitor for success of treatment, as recommendedby the 2013 Kenya National guidelines for cancer management (33), post molar evacuation hCG levels should be done weekly until 3 negatives are recorded, then monthly for 6 months.From available records, this study found that recommended schedule for follow up are not adhered to, and therefore treatment success cannot be ascertained by the findings of this study.However, 6(4.4%) of the patients who had subsequent hCG levels monitored were recorded to have a plateau or rise in subsequent hCG levels and were treated for GTN.

The study was limited by the fact that the choice of the population from which the study was conducted, KNH, being a National referral hospital, may not be representative of the general population hence the findings may not be generalized to the County hospitals which deal with a majority of patients with hydatidiform mole in the country. Secondly, the duration of study (2013 to 2017) was short resulting in a minimal pool to sample from. Thirdly, poor record keeping and/or missing data in various variables were encountered and to counter this, missing data from each variable was assumed to have occurred through the missing completely at random (MCAR) mechanisms and therefore complete case analysis was applicable. The study is strengthened by the fact that it is the index descriptive study on molar pregnancy in the country and that it highlights on the management of patients hence it is likely to impact positively on future patients and data management.

CONCLUSION AND RECOMMENDATIONS:

CONCLUSION:

The clinical presentation of molar pregnancy is relatively uniform in different set-ups, but the approach to definitive diagnosis of molar pregnancy at Kenyatta National Hospitaland their management and follow-up there after is suboptimal and inadequately documented hence outcome of management cannot be objectively determined.

RECOMMENDATIONS:

Following the challenges and findings of this study, we recommend that clinicians and caregivers at the Kenyatta National Hospital improve documentation of patients' clinical characteristics, management and follow up schedules of patients managed for molar pregnancy. We also recommend that Kenyatta National Hospital should consider development of follow-up tools and protocols for patients managed for molar pregnancy and ensure strict adherence to the management guidelines andfollow-up schedules. Further, we recommend that further research, including prospective studies, be conducted on molar pregnancy at county facilities.

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ANNEXES

***Annex 1: Data collection form*.**

Form code: _____

Patient code: _____

Patient In-patient Number: _____

1. Regarding the patient's characteristics:
   1.1. Did the patient present as a referral? YES_____
   NO_____
   1.2. What was her age? _____ Years.
   1.3. What was her parity? Para _____ + _____
   1.4. What was the 1st date of her last menses?
   _____/_____/_____
   1.5. What was her Gestation Age at presentation? _____ Weeks
   1.6. What were the outcomes of previous pregnancies (if any)?
   1st Pregnancy?
   HM___, Abortion___, Blighted ovum___, Live birth ___, Still birth___
   2nd pregnancy?
   HM___, Abortion___, Blighted ovum___, Live birth ___, Still birth___
   3rd pregnancy?
   HM___, Abortion___, Blighted ovum___, Live birth ___, Still birth___
   4th pregnancy?
   HM___, Abortion___, Blighted ovum___, Live birth ___, Still birth___
   5th pregnancy?
   HM___, Abortion___, Blighted ovum___, Live birth ___, Still birth___
   6th pregnancy?
   HM___, Abortion___, Blighted ovum___, Live birth ___, Still birth___
   7th and beyond?
   HM___, Abortion___, Blighted ovum___, Live birth ___, Still birth___

2. Regarding the clinical presentation that led to the diagnosis and management of Hydatidiform mole:
   2.1. Did the patient present with the following symptoms, signs and/or medical complications?
      2.1.1. Asymptomatic Yes_____ N0_____
      2.1.2. Vaginal bleeding Yes_____ N0_____
      2.1.3. Passing of vesicles Yes_____ N0_____
      2.1.4. Excessive vomiting Yes_____ N0_____
      2.1.5. Hyperthyroidism Yes_____ N0_____
      2.1.6. Missed miscarriage Yes_____ N0_____
      2.1.7. Anembryonic pregnancy Yes_____ N0_____
      2.1.8. Intrauterine snow storm appearance Yes_____ N0_____
      2.1.9. Amenorrhea Yes_____ N0_____
      2.1.10. Hypertension in pregnancy Yes_____ N0_____
      2.1.11. Excessive uterine distension Yes_____ N0_____
      2.1.12. Theca lutein cysts Yes_____ N0_____
      2.1.13. Anemia Yes_____ N0_____

   2.2. What other clinical symptoms, signs or medical complications did she present with (Specify each and their duration prior to presentation)
      _____ _____days
      _____ _____days
      _____ _____days
      _____ _____days

   2.3. What was the duration of the following symptoms, signs and/or medical complications (if present) prior to presentation to hospital?
      2.3.1. Vaginal bleeding _____days
      2.3.2. Passing of vesicles _____days
      2.3.3. Excessive vomiting _____days
      2.3.4. Hyperthyroidism _____days
      2.3.5. Missed miscarriage _____days
      2.3.6. Anembryonic pregnancy _____days
      2.3.7. Intrauterine snow storm appearance _____days

2.3.8. Amenorrhea _____days

2.3.9. Hypertension in pregnancy _____days

2.3.10. Anemia _____days

3. Regarding the patient's management:

3.1. Was the patient admitted? Yes_____ No_____

If yes to 3.1 above,

3.1.1. when was date of admission? _____ and discharge _____

3.1.2. When was the date of specific management (molar evacuation) done? _____

3.2. Were the following laboratory investigations done prior to molar evacuation?

3.2.1. Blood group Yes_____ No_____

3.2.2. Rhesus factor Yes_____ No_____

3.2.3. Grouping and cross-matching Yes_____ No_____

3.2.4. hCG levels Yes_____ No_____

3.2.5. Pregnancy test Yes_____ No_____

3.2.6. Complete blood count Yes_____ No_____

3.2.7. Liver function tests Yes_____ No_____

3.2.8. Urea, Electrolytes, Creatinine Yes_____ No_____

3.2.9. HIV screening Yes_____ No_____

3.2.10. Thyroid Function Tests Yes_____ No_____

3.2.11. Others: Specify

_____

3.3. For laboratory investigations answered, "YES" in 3.3 above, what were the results for the following specific tests?

3.3.1. Blood Group _____

3.3.2. Rhesus factor _____

3.3.3. hCG levels _____

3.3.4. Pregnancy test _____

3.3.5. HIV screening _____

3.3.6. Urea _____

3.3.7. Creatinine _____

3.3.8. Complete blood count:

3.3.8.1. White cell count _____

3.3.8.2. Hemoglobin level _____

3.3.8.3. Hematocrit _____

3.4. Were the following radiological investigations conducted?

3.4.1. Pelvic ultrasonography Yes_____ No_____

3.4.2. Abdominal ultrasonography Yes_____ No_____

3.4.3. Chest plain radiography Yes_____ No_____

3.4.4. Others: Specify: _____

3.5. What specific management was undertaken (tick)?

Suction curettage/evacuation _____

Manual Vacuum Aspiration (MVA) _____

Medical evacuation using Misoprostol _____

Medical evacuation using Oxytocin _____

Hysterectomy _____

Chemotherapy _____

3.6. Which of the following management options were undertaken as additional/supportive management before, during, and/or after molar evacuation?

3.6.1. Oxytocin administration: Yes_____ No_____

3.6.1.1. If yes, when was it utilized?

Before evacuation____, During evacuation____, after evacuation____

3.6.2. Prostaglandin (or prostaglandin analog) administration:Yes_____ No_____

3.6.2.1. If yes, when was it utilized?

Before evacuation____, During evacuation____, after evacuation____

Specify the prostaglandin (or analog) used:

_____

3.6.3. Blood transfusion: Yes_____ No_____

If yes…

3.6.3.1. When was it utilized?

Before evacuation____, During evacuation____, after evacuation____

3.6.3.2. How many units of blood were transfused?

3.6.3.2.1. Before evacuation _____ units

3.6.3.2.2. During evacuation _____ units

3.6.3.2.3. After evacuation _____ units

3.6.3.3. What blood products were transfused?

Whole blood _____

Packed cells _____

Platelet aggregates _____

Fresh Frozen Plasma _____

3.6.4. Anti-D administration for Rhesus Negative patients: Yes____ No____

3.7. Were the following investigations done post-molar evacuation?

3.7.1. Histology Yes_____ No_____

3.7.2. hCG levels Yes_____ No_____

3.7.3. Complete blood count Yes_____ No_____

3.7.4. Urea, Electrolytes, Creatinine Yes_____ No_____

3.7.5. Chest plain radiography Yes_____ No_____

3.7.6. Pelvic ultrasound Yes_____ No_____

3.7.7. Others: Specify _____

3.8. For investigations answered, “YES” in 3.8 above, what were the results for the following specific tests?

3.8.1. hCG levels _____

3.8.2. Urea _____

3.8.3. Creatinine _____

3.8.4. Complete blood count:

3.8.4.1. White cell count _____

3.8.4.2. Hemoglobin level _____

3.8.4.3. Hematocrit _____

3.8.5. Histology: _____

4. Regarding the patient's care after evacuation and discharge from hospital:

4.1. Was the patient discharged via GOPC? Yes ____ No ____

If yes,

4.1.1. To which facility was she to be followed up at GOPC?

KNH _____

Other _____

4.2. How long after evacuation and how long after discharge was she booked at GOPC?

____ Days after evacuation.

____ Days after discharge.

4.3. Was sharp curettage done post molar-evacuation? Yes ____ No ____

If Yes,

4.3.1. What was the indication for sharp curettage?

Scheduled sharp curettage post molar-evacuation ___

Abnormal uterine bleeding ___

Other (specify) _____

4.4. Was quantitative beta hCG levels done to monitor recovery?

Yes _____ No _____

If Yes,

4.4.1. Fill in the dates and the results of subsequent beta hCG levels in the table

Date	Result	Date	Result
1.		8.	
2.		9.	
3.		10.	
4.		11.	
5.		12.	
6.		13.	
7.		14.	

4.5. Was she advised and/or started on a contraceptive?

Yes ____ No ____

If yes,

4.5.1. What contraceptive option was considered?

Natural contraception ____

Barrier methods ____

Combined Estrogen Contraceptive Pills ____

Combined Estrogen Contraceptive Patch ____

Combined Estrogen Contraceptive Injection ____

Progestin based contraception ____

Copper IUCD ____

Annex 2: Timelines

Time Frame / **Activity**	**2018**											
	Jan	**Feb**	**March**	**April**	**May**	**June**	**July**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**
Proposal Development and defence												
Ethical clearance												
Data collection												
Data Analysis												
Thesis and manuscript writing and defence												

***Annex 3: Budget*:**

ACTIVITY/ITEM	**NUMBER**	**COST PER UNIT**	**AMOUNT (Ksh)**
Preparation of data collection tools	300 questionnaires and writing materials	300 questionnaires each costing 10ksh, total=3,000ksh. Writing materials=5000ksh	8,000ksh
Personnel hiring and training	One research assistant assisted in data collection.	Ksh 21,000 per person	21,000ksh
Pre-testing data collection tool	Principal researcher will be involved	3,000ksh for 5days	15,000ksh
Data Collection and Communication	Airtimes & transportation	300ksh for 10days	3,000ksh
Data Management and Analysis	Writing materials Buying software	10,000ksh writing material 30,000ksh Buying software and consultation	40,000ksh
Printing and Binding	Cost in printing Cost in Binding	15,000ksh in Binding 10,000ksh in printing	25,000ksh
10% contingence			10,000ksh
TOTAL PROJECT EXPENSES			**122,000ksh**

Annex 4: Dummy tables

1. Demographics

01	Age (mean and SD)	
02	Parity (mean, proportions)	

2. Medical information

<table>
<tr><td>03</td><td>Ultrasound (proportion)
Medical
Surgical</td><td></td></tr>
<tr><td>04</td><td>Mean gestation at presentation (in weeks)</td><td></td></tr>
<tr><td>05</td><td>Common clinical presentation at admission (proportions)
Per vaginal bleeding
Lower abdominal pain
Uterine distension
Medical complications
Theca lutein cyst on sonography</td><td></td></tr>
<tr><td></td><td>Outcomes (proportions)
<table>
<tr><td></td><td>Suction evacuation</td><td>Chemotherapy</td><td>Post evacuation sharp curettage</td></tr>
<tr><td>Complete resolution of symptoms</td><td></td><td></td><td></td></tr>
<tr><td>Infection</td><td></td><td></td><td></td></tr>
<tr><td>GTN</td><td></td><td></td><td></td></tr>
</table></td><td></td></tr>
<tr><td>05</td><td>Follow up
Number of times
Levels of beta hCG
Contraceptive use</td><td></td></tr>
</table>

3. Diagnostic criteria (tick as appropriate)

☐ Clinical

☐ Ultrasonography

☐ Beta hCG

☐ Histology

4. Cross tabulation of factors and outcomes

		Test
01	Suction Chemotherapy	Mean/median (SD/IQR)
02	Hospital stay: Mean hospital stay	Mean/median (SD/IQR)
03	Method of management and complications Suction evacuation Chemotherapy Manual Vacuum Aspiration	Mean/median (SD/IQR)